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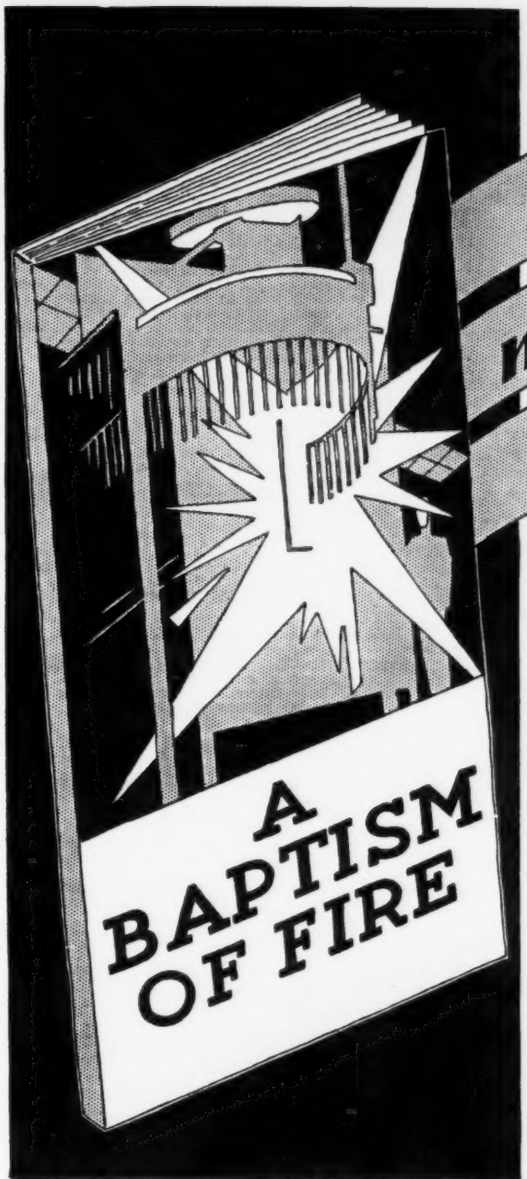

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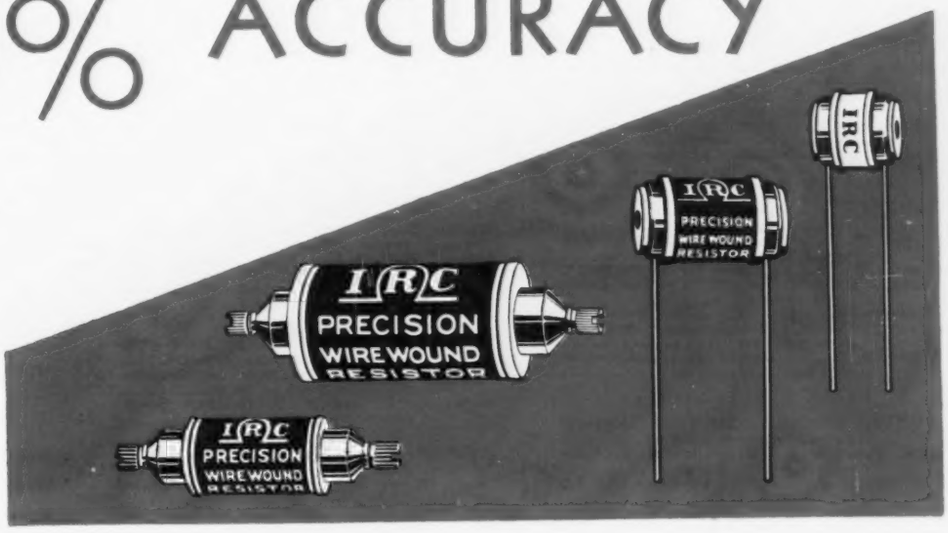

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Pentode tubes used as triodes

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age (B + C voltages) of about 325 volts in order to deliver the same power output as the 245 does with 300 volts applied. The average plate current for 300 volts on the plate and screen-grid with minus 25 volts on the control is 27 m.a. The d.c. power when used as a triode under the above conditions is 8.1 watts compared with a total power of 9.9 watts in the plate and screen-grid when used as a pentode.

The input voltage required is only about half of that required by the 245 tube. The per cent second harmonic is rather high so that its use as a single output tube connected as a triode is not recommended. It does, however, appear to offer some advantage when used in push-pull as a triode, namely a 50 per cent reduction in input voltage over that required by a 245 for about the same power and less matching difficulties than if it were used as a pentode.

The following conclusions may be reached:

1. The maximum obtainable power output efficiency is the same with either ideal pentode or ideal triode.

2. Ideal pentode characteristics under the conditions that voltage input will not exceed the negative grid bias may be realized practically much closer than ideal triode characteristics.

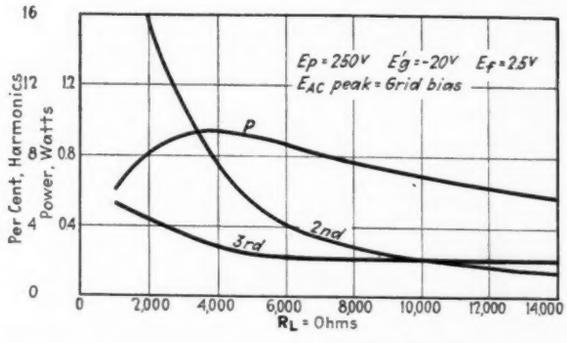


Fig. 5—Pentode used as triode; screen-grid tied to plate

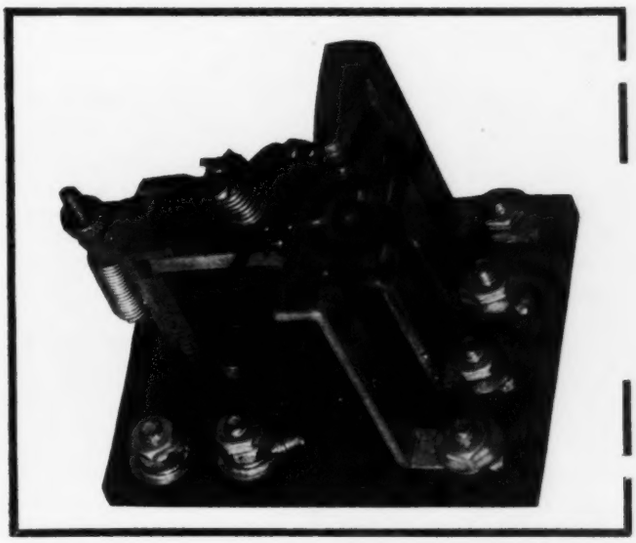
3. Ideal triode characteristics may be realized approximately by imposing no limitations on grid voltage swings.

4. A single pentode output tube is not as satisfactory as single triode as regards distortion taking into account output impedance variation with respect to frequency.

5. Good results as to quality may be obtained by pentode push-pull operation by matching so that the load impedance variation due to variation in speaker impedance with frequency will fall within the proper range.

6. Push-pull operation is more satisfactory than parallel operation.

7. The 247 type tube has some advantages for use as a triode with push-pull connections.



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